

DOCUMENT RESUME

ED 219 883

EA 014 949

AUTHOR Schneider, Frank W.; Coutts, Larry M.
TITLE Environmental Press and Value Climates of
Coeducational and Single-Sex High Schools.
SPONS AGENCY Canada Council, Ottawa (Ontario).; Ontario Dept. of
Education, Toronto.
PUB DATE Mar 82
GRANT CC-573-1887; ODE-No-1024
NOTE 32p.; Paper presented at the Annual Meeting of the
American Educational Research Association (New York,
NY, March 19-23, 1982).
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Catholic Schools; *Coeducation; *Educational
Environment; Foreign Countries; High Schools;
*Institutional Characteristics; Peer Influence;
Personality Traits; *Single Sex Schools; *Social
Environment; Social Status; Social Values; Student
Attitudes; Student Needs; *Student School
Relationship
IDENTIFIERS Environmental Press; *Ontario

ABSTRACT

To determine if there are critical differences between the social and psychological environments of coeducational and single-sex schools, researchers investigated five coeducational, four all-female, and four all-male high schools in Ontario (Canada). All of the schools are "Separate" schools; that is, they are Roman Catholic and, therefore, are attended primarily by students of that religious background. A total of 2,929 grades 10 and 12 students completed measures of value climate and "environmental press" (defined as the pressures, stresses, rewards, and conformity-demanding influences of the culture, and measured here by the High School Characteristics Index). The hypotheses evaluated were that coeducational schools, compared with single-sex schools, would be perceived by their students as placing (1) less emphasis on scholarship and achievement, (2) greater emphasis on affiliation and pleasurable, nonacademic activities, and (3) less emphasis on control and discipline. Support was attained for the second and third hypotheses, but the evidence relevant to the first hypothesis was inconsistent. The results suggest that coeducational schools enjoy an advantage in that they attend to social-emotional needs and minimize the necessity of regimentation and discipline, and that this advantage does not occur at the expense of academic concerns.
(Author/MLF)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

Environmental Press and Value Climates of
Coeducational and Single-Sex High Schools

Frank W. Schneider, University of Windsor
Larry M. Coutts, Personnel Psychology Centre, Ottawa

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official NIE
position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Frank W.
Schneider

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Paper presented at the meeting of the American Educational Research Association, New York City, March, 1982. This study was supported by grants from the Ontario Department of Education (No. 1024) and the Canada Council (573-1887). We wish to express our appreciation to the participating school boards, some of which were the following: Lincoln County Separate School Board, Waterloo County Separate School Board, and Windsor Roman Catholic School Board.

Abstract

Subjects were a total 2029 grade 10 and 12 students from 5 coeducational, 4 all female, and 4 all male high schools. They completed measures of value climate and environmental press (High School Characteristics Index) in order to permit an evaluation of the hypotheses that compared with single-sex schools, coeducational schools would be perceived by their students as placing (1) less emphasis on scholarship and achievement, (2) greater emphasis on affiliation and pleasurable, nonacademic activities, and (3) less emphasis on control and discipline. Support was attained for hypotheses 2 and 3, whereas the evidence relevant to hypothesis 1 was inconsistent. The results were interpreted as suggesting that coeducational schools enjoy an advantage both in terms of attending to social-emotional needs and minimizing the necessity of regimentation and discipline, and this advantage does not occur at the expense of academic concerns.

Environmental Press and Value Climates of
Coeducational and Single-Sex High Schools

During the nineteenth century and the early part of this century, the coeducation versus single-sex issue--whether to educate boys and girls together or separately--was a hotly contested one (Kolesnick, 1969; Pekin, 1939; Stamp, 1970). Needless to say, the case on behalf of mixed-sex schooling eventually held sway. At all academic levels the large majority of schools in North America, as well as in many other regions of the world, are now coeducational.¹ While many of the arguments in support of coeducation have considerable intuitive appeal (e.g., coeducation provides a more normal or natural social environment), those against it seem equally compelling (e.g., the presence of the opposite sex distracts one from his/her school work and coeducation neglects the existence of sex differences in interests and aptitudes). Indeed, a number of professionals recently have called for a thorough examination of the relative merits of coeducation and single-sex education (e.g., Byrne, 1978; Kolesnik, 1969; Lockheed, Note 1). In Great Britain, for instance, Byrne (1978) has called for a national debate on the issue.

A major assumption underlying the debate on coeducation versus single-sex education is that there are critical differences between the social psychological environments of the two types of institution (Feather, 1974). It stands to reason that in order to achieve an understanding of the effects of the two kinds of institution on their students, a thorough analysis of their respective environments is required. Yet, strikingly little research has been conducted, a state of affairs that undoubtedly is related to the declining availability of single-sex schools.

Some two decades ago, in The Adolescent Society, Coleman (1961) proposed that coeducation may have a negative impact on the academic achievement and social adjustment of students because status among peers at the high school level may depend more on popularity, with a greater emphasis on "rating and dating," than on scholastic achievement. Coleman's thinking was based on the responses of students from predominantly coeducational high schools in the United States to questions about their perceptions of those factors that contribute to the attainment of status among their schoolmates. For example, for both sexes popularity was seen as depending more on nonacademic attributes and accomplishments (e.g., being an athlete, being a member of the leading crowd, and having a nice car) than on academic success, and, suggestive of the disadvantages of coeducation, this was particularly so for popularity with members of the opposite sex.

Two studies have been concerned with the tenability of Coleman's hypothesis. Using Coleman's measure of "value climate" with high school students from each of a coeducational, all-female, and all-male school in New Zealand, Jones, Shallcrass, and Dennis (1972) found, consistent with Coleman's hypothesis, that, in contrast to single-sex school students, coeducational school students ranked being a good scholar as less critical in achieving importance and respect among their schoolmates and nonacademic factors, such as being in the leading crowd and having a nice car, as more critical. On the other hand, a study by Feather (1974) in Australia did not support Coleman. Feather administered Rokeach's (1973) Value Survey to high school students from 4 coeducational, 2 all-female, and 2 all male schools, asking them to rank 18 terminal values and 18 instrumental values according to the emphasis given them by their schools. No school type differences were found for any of

the terminal values, including those related to their academic orientations (e.g., "a sense of accomplishment" and "wisdom") and their affiliation orientations (e.g., "true friendship" and "social recognition"). Only a few instrumental value differences emerged. Contrary to Coleman's view, single-sex school girls saw their schools as placing less importance on being intellectual and logical than did coeducational school girls.

Apart from possible differences in their relative emphases on academic achievement, the normative environments of single-sex and coeducational schools also have been investigated with regard to their emphases upon order and control. For example, in his study, Feather (1974) found that both boys and girls from single-sex schools saw their schools as attaching greater importance to being clean than did their coeducational counterparts, and the single-sex school girls reported their schools placed more emphasis on being helpful and polite. He viewed these results as being consistent with those of Dale (1969, 1971) in Great Britain who found that both students (representing 12 schools of each of the three types) and ex-students perceived single-sex schools as placing greater stress on control and discipline.

Dale's (1969, 1971) findings are especially noteworthy because his research entails the most extensive investigation of the environments of coeducational and single-sex schools to date. Of particular relevance to our present concern is that among Dale's students, those from coeducational schools were most likely to agree with the statement that the atmosphere of their schools was pleasant. In fact, Dale highlights the atmospheric difference as a factor that particularly differentiated the two school types. In characterizing the pleasantness of their school atmospheres (using a free

response technique), the coeducational school students focused on three themes: (1) friendliness of peers and good social life, (2) positive student-teacher relations, and (3) normal boy-girl relations.

Whereas the preceding investigators examined school environment from the student's perspective, Schneider and Coutts (1979) studied the normative environments of coeducational and single-sex high schools by asking teachers representing 8 coeducational, 4 all-female, and 4 all-male Ontario high schools to rate the acceptability of stereotypically feminine and masculine traits and to complete an inventory dealing with their beliefs about the teaching process. Schneider and Coutts found some tendency for coeducational teachers to be more tolerant of masculine traits (e.g., rebellious and inattentive) and less insistent on the display of feminine traits (e.g., obedient and neat) than single-sex school teachers. These findings may be viewed as consistent with the results of Feather (1974) and Dale (1971) in suggesting that coeducational schools place less emphasis on control and discipline; however, not in accordance with this notion was the finding that teachers from coeducational and single-sex schools did not differ in their beliefs about whether the locus of control over the classroom learning process should reside in the teacher or the student. Schneider and Coutts also found that coeducational school teachers were more likely to believe in the importance of (1) considering the student's viewpoint and (2) showing an active concern for the student's social and emotional development, findings which are in line with the aforementioned comments of Dale's coeducational school students about positive student-teacher relations.

The purpose of the present investigation was to extend the comparison of the environmental perceptions of students from coeducational and single-sex

high schools to the North American educational context and to do so in a more systematic and thorough manner than has occurred in previous research. As in Coleman's (1961) and Jones et al.'s (1972) research, a measure of value climate was used. However the main focus of the study was an analysis of the environmental press of the institutions involved. The term "press" may be attributed to Murray (1938) who proposed that one's behavior is a function of the combination of needs and presses. In defining press, Pace and Stern (1958) say "just as needs are inferred from the characteristic modes of response of an individual, so press are reflected in the characteristic pressures, stresses, rewards, conformity-demanding influences of the . . . culture" (p. 270). Central to the notion of press is that the environment includes factors that may either facilitate or interfere with the gratification of needs. In the present investigation, scales from the High School Characteristics Index (Stern, 1970) were used to measure environmental press. Respondents indicated whether or not each statement comprising a scale (e.g., achievement scale) was characteristic of their schools, thereby indicating the extent to which they perceived their school environments as contributing to the satisfaction of the relevant need (e.g., need for achievement).

Despite the existence of several important differences among the investigations reviewed above, including differences in cultural factors and assessment procedures, there is sufficient commonality in their findings for us to develop at least three basic hypotheses. The findings of Coleman (1961) and Jones et al. (1972) suggest that the environments of coeducational schools may be less supportive of scholastic achievement than the environments of single-sex schools. (Recall, however, that Feather's research on values

did not support this notion.) Our first hypothesis was that compared with their single-sex school counterparts, coeducational school students would perceive their schools as placing less emphasis on scholarship and achievement. Also, with the exception of Feather's (1974) findings, those of Coleman (1961), Dale (1971), and Jones et al. (1972) (see also Irving, Note 2) suggest that in coeducational schools greater emphasis is placed on the nonacademic, more affiliative and social aspects of school life. Thus, the second hypothesis was that students would perceive coeducational schools as placing greater emphasis than single-sex schools on affiliation and more pleasurable, nonacademic activities. Lastly, the evidence (Dale, 1971; Feather, 1974; Schneider & Coutts, 1979) consistently indicates school type differences in the importance of maintaining good conduct and order. Thus, our third hypothesis was that coeducational schools would be seen as placing less emphasis than single-sex schools on control and discipline.

Method

Subjects

The subjects were high school students representing 5 coeducational schools, 4 all-male schools, and 4 all-female schools. Among the coeducational school students were 210 grade 10 males, 215 grade 10 females, 211 grade 12 males, and 212 grade 12 females. Among the single-sex school students were 294 grade 10 males, 295 grade 10 females, 295 grade 12 males, and 297 grade 12 females. All of the schools were Separate schools; that is, they were Roman Catholic and, therefore, attended primarily by students of that religious background. Through grade 10, Separate schools are publicly

funded; thereafter students pay tuition. The percentages of lay teachers in the coeducational, all-male, and all-female schools were 77 (range = 51 - 91), 75 (range = 57 - 83), and 71 (range = 48 - 87), respectively; the percentages of female teachers in the coeducational, all-male, and all-female schools were 36 (range = 22 - 45), 7 (range = 0 - 11), and 86 (range = 75 - 100), respectively. The schools were located in urban centers of Southeastern Ontario (minimum city population = 80,000). A school type (coeducational and single-sex) x sex x grade level² analysis of variance on Blischen's (1967) index of socioeconomic status (based on father's occupation) revealed no significant differences in social class among the various categories of student.

Procedure and Questionnaire

The scales relevant to this study were included in a questionnaire administered to students on a group basis at their schools. For the measure of value climate, the students were asked the following: "Among the items below, what does it take to get to be important and looked up to by the other girls (boys, in the case of male students) here at school?" Subjects then rank ordered (1 being most important) the following six items: "being a leader in activities," "having money," "getting high grades, honour roll," "being an athletic star," "being good looking," and "having a good personality."

For the measures of environmental press, scales from the High School Characteristics Index (HSCI) (Stern, 1970) were used. The HSCI consists of 30 10-item scales in true-false format. Eight scales were selected on the basis of Mitchell's (1968) factor analysis of the HSCI which yielded four

independent factors. Two scales from each of the four factors were selected. Below are listed Mitchell's four factors and their corresponding two HSCI scales. Each scale is accompanied by a brief identifying phrase provided by Stern (1970, p. 16) and a sample item. (a) Strong Intellectual Orientation: Achievement: "striving for success through personal effort," sample: "There is a lot of competition for grades." Humanities, Social Science: "interests in the humanities and social sciences;" sample: "Many teachers and students are involved with literary, musical, artistic, or dramatic activities outside the classroom." (b) School Activities: Affiliation: "group-centered social orientation;" sample: "It is easy to make friends in this school because of the many things that are going on that anyone can participate in." Play-Work: "pleasure seeking versus purposefulness;" sample: "Everyone has a lot of fun at this school." (c) Strong Environmental Control: Impulsiveness-Deliberation: "impulsiveness versus reflection;" sample: "Students who tend to say or do the first thing that occurs to them are likely to have a hard time here." Deference-Resistiveness: "respect for authority versus rebelliousness;" sample: "Teachers go out of their way to make sure that students address them with due respect." (d) Negative Attitude Toward the Environment: Abasement-Assurance: "self-depreciation versus self-confidence;" sample: "The teacher very often makes you feel like a child." Objectivity-Projectivity: "objective detachment versus suspicion;" sample: "Everyone has the same opportunity to get good marks here because the tests are marked very fairly."

In addition to the value climate and environmental press items, two questions were asked: "Do you think the rules in your school are too strict?" (response alternatives: "no", "yes, somewhat too strict," and "yes,

much too strict"); and "Do you wish you could work harder in school but don't because of what your friends would think?" (response alternatives: "always", "sometimes", "seldom", and "never").

Results

This section is divided into three main subsections, including the findings regarding (a) the value climate measure, (b) environmental press scales, and (c) the two additional questions. To further facilitate assimilation of the results, the first two subsections are divided into findings that pertain to the effects of school type (e.g., are relevant to the hypotheses of the study) and those that pertain to the roles of age and sex. Finally, in view of the large sample size, $p < .01$ is considered to signify statistical significance, and $.01 > p < .05$ is considered to signify marginal significance.

Value Climate

Recall that students were asked to rank order six items in terms of their relative importance in contributing to status among their same-sex peers. The students' rankings of the six items of the value climate measure were first subjected to a school type x grade x sex multivariate analysis of variance. The three main effects and the school type x sex interaction were significant ($p < .001$). Then a separate univariate analysis of variance was carried out on the rankings given to each of the six items. The mean rankings are presented in Table 1.

Insert Table 1 about here

Effects of school type. Main effects of school type indicated that students from single-sex schools ranked "being a leader in activities," $F(1, 1980) = 11.46, p < .001$, and "getting high grades, honour roll," $F(1, 1980) = 107.06, p < .0001$, as contributing more to the attainment of status among their peers than did coeducational school students.³ On the other hand, coeducational school students ranked "being good looking," $F(1, 1976) = 160.35, p < .0001$, and "having money," $F(1, 1976) = 8.47, p < .01$, higher than did the single-sex school students. A school type $\times$ sex interaction, $F(1, 1983) = 25.85, p < .0001$, indicated that among males, coeducational school students perceived "being an athletic star" as more important than did single-sex school students ($p < .01$), whereas among females, the reverse was true ($p < .001$). The above value climate results provide support for hypothesis 1, that single-sex school students perceive their environments as placing greater emphasis on academic achievement. This is clearly suggested by the fact that single-sex school students ranked getting high grades much higher than did coeducational school students, whereas the latter ranked nonacademic factors--good looks and money--higher.

Effects of grade and sex. Grade was a significant factor for only one item. Grade 12 students ranked leadership in activities higher than did grade

10 students, $F(1,1980) = 12.26$, $p < .001$. Sex, however, was a significant source of variance for all but the importance of high grades. Females gave higher rankings than did males to leadership in activities, $F(1,1980) = 6.72$, $p < .01$, good looks, $F(1, 1976) = 237.12$, $p < .0001$, and good personality, $F(1, 1984) = 76.18$, $p < .0001$. In contrast, males gave higher rankings to having money, $F(1, 1976) = 36.50$, $p < .0001$, and being an athletic star, $F(1,1983) = 429.32$, $p < .0001$.

Environmental Press. Recall that students were asked to respond to eight scales based on Mitchell's (1968) factor analysis of the entire High School Characteristics Index (HSCI). Scores on the HSCI scales initially were analysed by a school type x grade x sex multivariate analysis of variance which showed that all main and interaction effects were significant ($p < .01$). A subsequent univariate analysis of variance also was carried out on each of the eight HSCI scales. The mean scores are presented in Table 2.

Insert Table 2 about here

Effects of school type. With regard to the two scales that loaded on Mitchell's (1968) Strong Intellectual Orientation factor, the results showed that for the Achievement scale, the school type x sex interaction, $F(1,2021) = 7.58$, $p < .01$, and the school type x grade x sex interaction, $F(1, 2021) = 7.75$, $p < .01$, were significant; for the Humanities, Social Science scale, no

effects involving school type were significant. Analysis of the three-way interaction on the Achievement scale revealed that school type was not a significant factor among grade 12 students; however, among grade 10 students, whereas achievement press was higher for coeducational school females than for single-sex school females ($p < .001$), there was a tendency for it to be lower among coeducational school boys than among single-sex school boys ($p < .05$). These results, coupled with the nonsignificance of school type for the Humanities, Social Science scale, indicate that, unlike the value climate data, the environmental press data do not support the first hypothesis that single-sex school students perceive greater emphasis on scholarship and achievement in their schools.

For the two scales related to the School Activities factor, the results indicated that for the Affiliation scale, school type, $F(1, 2021) = 266.00$, $p < .0001$, and the school type $\times$ grade $\times$ sex interaction, $F(1, 2021) = 10.87$, $p < .001$, were significant; for the Play-Work scale, school type, $F(1, 2021) = 351.10$, $p < .0001$, and the school type $\times$ grade interaction, $F(1, 2021) = 10.78$, $p < .001$, attained significance. The very sizeable effect of school type for both the Affiliation and Play-Work scales, an effect that is maintained at each grade-sex combination ($p < .001$), strongly supports hypothesis 2. As predicted, coeducational school students perceived their school environments as being more affiliative and pleasure oriented than did single-sex school students.

For the scales related to the Strong Environmental Control factor, the analyses revealed that for the Impulsiveness-Deliberation scale, school type, $F(1, 2021) = 46.11$, $p < .0001$, and the school type $\times$ sex interaction, $F(1, 2021) = 8.04$, $p < .01$, were significant. Similarly, for the

Deference-Restiveness scale, school type, $F(1, 2021) = 8.50, p < .01$, and the school type $\times$ sex interaction, $F(1, 2021) = 39.24, p < .0001$, were significant, whereas the three-way interaction approached significance, $F(1, 2021) = 4.42, p < .04$. Subsequent analyses of the interactions indicated that both single-sex school males and females described their schools as being lower on impulsiveness than did either coeducational school males ($p < .01$) or females ($p < .001$), and single-sex school females (but not males) described their schools as placing more emphasis on deference ($p < .01$). These results, then, generally accord with the third hypothesis that single-sex school students would view their schools as placing greater emphasis on control and discipline.

The results concerning the scales associated with the Negative Attitudes Toward Environment factor revealed that for the Abasement-Assurance scale, school type, $F(1, 2021) = 39.30, p < .0001$, and the school type $\times$ grade interaction, $F(1, 2021) = 9.15, p < .01$, were significant; for the Objectivity-Projectivity scale, school type, $F(1, 2021) = 25.65, p < .0001$, and the school type $\times$ grade $\times$ sex interaction, $F(1, 2021) = 9.30, p < .01$, were significant. Analysis of the interactions showed that school type had its greatest effect at the grade 10 level wherein single-sex school students described their schools as being higher on abasement and lower on objectivity than did their coeducational school counterparts ($p < .001$). At the grade 12 level, there was a similar marginal tendency for single-sex school students to score higher on abasement ($p < .05$) and a significant tendency for single-sex school females, but not males, to score lower on objectivity ($p < .001$).

Effects of grade and sex. For the Achievement scale, significant sources of variance were grades, $F(1, 2021) = 20.02, p < .0001$, and the school type $\times$ grade $\times$ sex interaction (F values regarding the role of school

type were given in the previous section and, thus, are not repeated). For the Humanities, Social Science scale, only the grade x sex interaction, $F(1, 2021) = 8.03$, $p < .01$ was significant. The three way interaction for achievement indicated that achievement press was greater for grade 10 than grade 12 students, however, this was so only for coeducational school females ($p < .001$) and single-sex school males ($p < .01$). Moreover, whereas there were no significant sex differences at the grade 12 level, among grade 10 students from single-sex schools, males scored higher on achievement than females ($p < .01$), and among grade 10 students from coeducational schools, females tended to score higher than males ($p < .05$). For the Humanities, Social Science scale, the grade x sex interaction revealed that grade 12 males scored higher than grade 12 females ($p < .01$), whereas at the grade 10 level there was no sex difference.

For the Affiliation scale, grade, $F(1, 2021) = 27.08$, $p < .0001$, sex, $F(1, 2021) = 22.91$, $p < .0001$, and the three way interaction were significant. For the Play scale, grade, $F(1, 2021) = 29.65$, $p < .0001$, sex, $F(1, 2021) = 15.21$, $p < .0001$, and the school type x grade interaction were significant. Regarding the role of grade level, the results concerning affiliation press indicated that in coeducational schools, grade was significant for females (grade 10 students had higher scores; $p < .001$) but not for males, whereas in single-sex schools, grade was significant for males (again grade 10 students were higher; $p < .001$) but not for females. On the Play-Work scale, coeducational grade 10 students scored higher than their grade 12 schoolmates ($p < .001$); however, for single-sex school students, the grade difference was not significant. Concerning the role of sex, males described their school as higher in play press than did females. The same

pattern applied to affiliation press, although a significant sex difference occurred only for the coeducational school grade 12 and single-sex school grade 10 students ($p < .001$); for single-sex school grade 12 students the difference was marginally significant ($p < .02$).

The only significant effect for the Impulsiveness-Deliberation scale was the school type x sex interaction which showed that for single-sex school students, but not coeducational school students, males scored higher than females on impulsiveness ($p < .001$). For the Deference-Restiveness scale, grade, $F(1, 2021) = 14.09$, $p < .001$, sex, $F(1, 2021) = 41.87$, $p < .0001$, and the school type x sex and three-way interactions were significant. Concerning grade level, the results indicated that for males representing both school types, grade 10 students scored higher on deference than grade 12 students ($p < .001$), and coeducational school grade 10 females tended to score higher than their more advanced same-sex schoolmates ($p < .05$). Regarding sex, for single-sex school students only, males had lower deference scores than females ($p < .001$).

For the Abasement-Assurance scale, grade, $F(1, 2021) = 27.53$, $p < .0001$, the school type x grade interaction, and the grade x sex interaction, $F(1, 2021) = 10.65$, $p < .01$, were significant. The significant effects for the Objectivity Projectivity scale were grade, $F(1, 2021) = 15.23$, $p < .0001$, the grade x sex interaction, $F(1, 2021) = 27.06$, $p < .001$, and the three-way interaction. Concerning grade, in the coeducational schools, but not the single-sex schools, grade 12 students scored higher on abasement ($p < .001$); and with the exception of coeducational schoolmales, grade 12 students scored lower on objectivity ($p < .001$). Regarding sex, females at the grade 12 level, but not at the grade 10 level, scored higher on abasement; moreover,

the only sex difference on the Objectivity-Projectivity scale was among single-sex school grade 12 students, with females scoring lower in objectivity ($p < .001$).

Additional Questions. Analysis of students' responses to the question, "Do you think the rules in your school are too strict?", indicated that school type, $F(1, 1980) = 102.43$, $p < .0001$, sex, $F(1, 1980) = 10.29$, $p < .01$, the school type $\times$ sex interaction, $F(1, 1980) = 9.65$, $p < .01$, and the grade $\times$ sex interaction, $F(1, 1980) = 11.21$, $p < .001$, were significant sources of variance. Breakdown of the school type $\times$ sex interaction indicated that, in accordance with hypothesis 3, for both sexes coeducational school students were less likely to describe their schools as having overly strict rules ($p < .001$). Moreover, within single-sex schools, females saw the rules to be stricter than did males ($p < .001$). The grade $\times$ sex interaction indicated that grade 12 females viewed their schools as being stricter than did either grade 12 males ($p < .001$) or grade 10 females ($p < .001$).

The significant effects for the question, "Do you wish you could work harder in school but don't because of what your friends would think?", were as follows: school type, $F(1, 1963) = 12.87$, $p < .001$, grade, $F(1, 1963) = 49.58$, $p < .0001$, sex, $F(1, 1963) = 44.49$, $p < .0001$, and the school type $\times$ grade $\times$ sex interaction, $F(1, 1963) = 5.18$, $p < .03$. Analysis of the three-way interaction showed that single-sex school students were more likely than coeducational school students to answer the question in the affirmative; however, the difference was significant only for grade 10 males ($p < .001$) and grade 12 females ($p < .001$). Also, with the exception of single-sex school females, grade 10 students were more likely than grade 12 students to agree with the question ($p < .001$). And for all categories of student, except the

single-sex grade 12 group (who showed a marginally significant trend), males were more likely than females to agree with it ($p < .001$).

Discussion

Of the three hypotheses underlying the investigation, the results fail to support unequivocally only the first--that the single-sex school environment would be viewed as placing greater emphasis on scholarship and achievement than would the coeducational school environment. Some support for the hypothesis was indicated by the value climate data which showed that single-sex school students were much more likely than coeducational school students to believe that academic excellence is an avenue to the achievement of status among their same-sex schoolmates. However, contrary to the first hypothesis, environmental press data (i.e., the HSCI Achievement and Humanities, Social Science scales) suggested a marked similarity between the amount of intellectual emphasis in the two types of institution. In seeking to reconcile this apparent inconsistency, it may help to compare both the conceptual and psychometric properties of the value climate measure and the two HSCI scales. Conceptually, the value climate measure taps the prevailing peer group reward structure, i.e., what does one have to do to be esteemed by his/her schoolmates. The HSCI scales, on the other hand, focus primarily on the degree to which the overall school environment provides opportunities for the satisfaction of one's intellectual needs.

Notwithstanding the conceptual differences between the value climate and environmental press measures, it is still reasonable to expect greater consistency between the two than is evident. Psychometric differences may

further help to account for the inconsistency. The value climate measure is based on a ranking procedure in which the score (rank) assigned to one factor is tied directly to the nature and relative importance of the other factors being ranked. On the other hand, the HSCI does not suffer from this limitation; scores on each of its scales are independently derived. Thus, it is possible that a factor, such as academic excellence, may on an absolute level be of equal importance to students in the two types of school but on the value climate measure may be ranked higher in the single-sex institution because the other factors being ranked are of lower absolute importance in single-sex schools than in coeducational schools. Indeed, the considerably higher HSCI Affiliation and Play-Work scale scores of the coeducational school students suggest why such nonacademic factors as physical appearance and money may be ranked higher in the coeducational schools.

Moreover, if the adolescent value system of the single-sex schools was more supportive of academic pursuits, then single-sex school students should have been less likely to indicate that they didn't work as hard as they wished out of concern for what their peers would think of them. On the contrary, however, single-sex school students (grade 10 males and grade 12 females) were more likely to endorse this statement than their coeducational school counterparts. Clearly, we cannot confidently conclude that our data support Coleman's suggestion that coeducation may be inimical to the academic progress of students. Our reluctance is bolstered by the lack of consistent evidence from both the United States (Kolesnick, 1969) and Great Britain (Irving, Note 2; Wood & Ferguson, 1974) that single-sex school students show an achievement superiority over coeducational students and from the aforementioned Schneider and Coutts (1979) study that revealed a stronger

belief among coeducational school teachers (many of whom taught the subjects in this study) than single-sex school teachers in the importance of mastering the actual content of courses.

Notwithstanding the status of the hypothesis regarding school type differences in academic emphasis, the two remaining hypotheses were firmly supported. In contrast to their single-sex school counterparts, coeducational school students described their schools as substantially higher in both affiliation and play press, thus supporting hypothesis 2 that coeducational schools would be viewed as more affiliative and pleasure oriented. Furthermore, coeducational school students described their schools as higher in impulsiveness press, and coeducational females, but not males, described their schools as lower in deference press. These results, as well as those related to the question, "Do you think the rules in your school are too strict?", largely support our third hypothesis that single-sex schools would place greater emphasis on control and discipline. Lastly, school type differences were found for the two scales loading on Mitchell's (1968) Negative Attitude Toward Environment factor. At the grade 10 level, in particular, coeducational school students described their schools as lower on abasement press and higher on objectivity press.

The general picture that emerges, then, is one in which, compared with the single-sex schools, the coeducational schools were perceived by their students as more gregarious, group-centered, and friendly, more entertaining and enjoyable, more tolerant of noncompliance, spontaneity, and impetuosity, as having less strict rules, as more conducive to the development of feelings of self-confidence and self-respect, and as reflecting less prejudiced and irrational thinking.⁴

Undeniably, the coeducational school students provided a considerably more favorable description of the social and emotional climates of their schools than did the single-sex school students. It is noteworthy that the results pertain to both grade levels and sexes, although they tend to be stronger at the grade 10 level concerning abasement press and objectivity press and for female students concerning deference press and objectivity press. Also, it is of considerable import that this description, which is reflective of the coeducational-single-sex school distinction in the Separate School System of Ontario, is very similar to those that have been given by students in Great Britain (Dale, 1971) and New Zealand (Irving, Note 2). Recall that, as mentioned in the introduction, Dale highlighted the more pleasant atmospheres of coeducational schools as particularly differentiating the two types of school. Not suprisingly, he also found attitudinal concomitants of such differences. In general, coeducational school students and ex-students reported being happier in school; and ex-students from both coeducational and single-sex schools (including those who had attended both types) indicated a decided preference for mixed-sex schooling. The present students' responses to the scales loading on the Negative Attitudes, toward Environment factor seem to corroborate Dale's results.⁵

It is our contention that the present data veridically reflect major differences in the social psychological environments of coeducational and singlesex high schools inasmuch as we believe that these differences are based on the particular social-structural features of each type of institution. A possible argument against this position is that as a consequence of selective enrollment, the results simply reflect differences in the personalities of the students attending the two kinds of institution. According to such a view,

either the environments of the schools are determined by the personalities of their students (Holland, 1973) or the students' perceptions of their schools reflect projections of their personalities. However, the subjects' scores on personality variables relevant to two of the environmental press scales--the Achievement and Affiliation scales--were available and cast doubt upon this alternative interpretation. Contrary to a self-selection argument, no significant differences between coeducational and single-sex school students were found on Personality Research Form (Jackson, 1965) measures of need for achievement and need for affiliation. The latter is especially noteworthy in light of the students' perception of a substantial difference in the affiliation press of the schools.

What remains to be explained is precisely what accounts for the environmental differences between coeducational and single-sex schools, for it is unlikely that they result largely from conscious differences in educational policy. It may not be difficult to understand why schools comprised of a mixture of male and female adolescents have richer social atmospheres. But what is perplexing is the greater stress on control and order that characterized single-sex schools. At least three not unrelated explanations may account for this environmental difference. First, as suggested by Dale (1969, 1971), the presence of the opposite sex may have an ameliorating influence on students' conduct, thus making it possible for those in authority to administer a lighter form of control. (Dale does report that teachers tended to agree that girls positively influence the behavior of boys, whereas lesser agreement was found regarding the effect of boys on girls.) This, according to Dale, would also make it easier for teachers to be friendlier and more helpful toward students, thus reducing barriers between students and

teachers. Second, notwithstanding the particular effects of one sex upon the behavior of the other, it is possible that the generally greater enjoyment of the school environment experienced by coeducational school students also would create a situation in which less control and discipline are required to maintain a reasonable degree of order. Finally, irrespective of differences in the actual need for such control, to the extent that there exists a widespread belief that single-sex schools are more authoritarian in nature, our earlier finding suggesting that single-sex school teachers are less tolerant of rebelliousness, inattentiveness, and disobedience among students (Schneider & Coutts, 1979) may reflect a process of self-selection whereby those individuals who are predisposed toward the exercise of either more or less control seek out teaching positions within the single-sex and coeducational school systems, respectively.

The role of sex also merits comment. Consistent differences, cutting across both school type and grade, were found on five of six value climate items. Females attached greater importance than males to leadership in activities and, particularly, to having good looks and a good personality as means to achieving peer group status; on the other hand, males placed greater emphasis than females on having money, and, especially, on being an athletic star. It is of interest that the only item on which the sexes did not differ was the one related to the importance of scholastic success. Furthermore, the "high grades, honour roll" item was not viewed as of major importance for any category of student (the highest was a rank of 3 which was given by single-sex school females). This pattern of findings resembles the academic-athletic-popularity syndrome which has been used by some writers to describe Canadian and American adolescent societies (Downey, 1965; Friesen,

1968) wherein academic achievement is valued less than athletics (especially among boys) and popularity (especially among girls).

Another sex difference pertained to the fact that the all-girls schools were described as emphasizing control and discipline to a greater extent than were the all-boys schools. This, incidentally, was the only clearcut difference between the two kinds of single-sex schools. Lastly the results also indicated that male students were more likely than female students to indicate that they succumbed to peer pressure against engaging in academic pursuits. Although this result does not accord with the laboratory evidence that females generally conform more than males (Minton & Schneider, 1980), it is consistent with a body of questionnaire research that suggests that girls are less likely than boys to resolve conflicts by making peer-oriented decisions (Bixenstine, DeCorte, & Bixenstine, 1976; Hollander & Marcia, 1970). For example, girls are more likely to report that they will resist attempts by peers to get them to engage in misbehavior (Bixenstine, et al., 1976).

In conclusion, this investigation has confirmed what has long been thought to be true but rarely subjected to systematic examination--the existence of important differences between the social psychological environments of mixed-sex and single-sex high schools. Coeducational schools seem to enjoy the advantage of having more pleasant atmospheres--both in terms of attending to the social-emotional needs of their students and minimizing the necessity of regimentation and discipline--and this advantage apparently does not occur at the expense of academic concerns.

Footnotes

¹A UNESCO survey indicates that there is a worldwide trend toward coeducation (Greenough, 1970).

²With respect to grade level, the schools represented at grade 12 were not entirely the same as those at grade 10. Data from one all-male school were available on grade 10 students only; thus only three schools are represented in the grade 12 all-male sample. Also, data from one coeducational school were available only at the grade 10 level and from a second coeducational school only at the grade 12 level; thus, for the coeducational data, only three schools were the same at grades 10 and 12.

³The degrees of freedom vary slightly among the various analyses because of missing information on small proportions of subjects.

⁴This general description is based on definitions of the HSCI scales provided by Stern (1970; the only exception is the phrase "having less strict rules" which stems from one of the two additional items administered to the students.

⁵We might note that with respect to the Jones et al. (1972) study which indicated that the value climates of coeducational schools are less supportive of academic achievement than those of single-sex schools, Irving (Note 2) makes the following observation: "It is interesting to note that when the authors went beyond their questionnaire data and conducted individual in-depth interviews. . .the results, not reported in the published study, suggested a healthier and happier environment in the coeducational school" (p. 6).

Reference Notes

1. Lockheed, M. Legislation against sex discrimination: Implications for research. Paper presented at the meeting of the American Educational Research Association. San Francisco, April, 1976.
2. Irving, J. Coeducational or single-sex schools? A review of the literature. New Zealand Council for Educational Research, Set 76, Number 1, Item 9, 1976.

References

- Bixenstine, V. E., DeCorte, M. S., & Bixenstine, B. A. Conformity to peer-sponsored misconduct at four grade levels. Developmental Psychology, 1976, 12, 226-236.
- Blishen, B. R. A socio-economic index for occupations in Canada. Canadian Review of Sociology and Anthropology, 1967, 4, 41-53.
- Byrne, E. M. Women and education. London: Tavistock, 1978.
- Coleman, J. S. The adolescent society. New York: The Free Press, 1961.
- Dale, R. R. Mixed or single-sex school? Vol. I. London: Routledge & Kegan Paul, 1969.
- Dale, R. R. Mixed or single-sex school? Vol. II. London: Routledge & Kegan Paul, 1971.
- Downey, L. W. The secondary phase of education. New York: Blaisdell, 1965.
- Feather, N. T. Coeducation, values, and satisfaction with school. Journal of Educational Psychology, 1974, 66, 9-15.
- Friesen, D. Academic-athletic-popularity syndrome in the Canadian high school society (1967). Adolescence, 1968, 3(9), 39-52.
- Greenough, R. Coeducation as a world trend. School & Society, 1970 (Jan.), 98, 31-32.
- Holland, J. L. Making vocational choices: A theory of careers. Englewood Cliffs, N.J.: Prentice-Hall, 1973.
- Hollander, E. P., & Marcia, J. F. Parental determinants of peer-orientation and self-orientation among preadolescents. Developmental Psychology, 1970, 2, 292-302.
- Jackson, D. N. Personality Research Form A. Goshen, N.Y.: Research Psychologists Press, 1965.
- Jones, J. C., Shallcrass, J., & Dennis, C. C. Coeducation and adolescent values. Journal of Educational Psychology, 1972, 63, 334-341.
- Kolesnik, W. B. Coeducation: Sex differences and the school. New York: Vantage Press, 1969.
- Minton, H. L., & Schneider, F. W. Differential psychology. Monterey, Calif.: Brooks Cole, 1980.

- Mitchell, J. V., Jr. Dimensionality and differences in the environmental press of high schools. American Educational Research Journal, 1968, 5, 513-530.
- Murray, H. A. Explorations in personality. New York: Oxford University Press, 1938.
- Pace, C. R., & Stern, G. G. An approach to the measurement of psychological characteristics of college environments. Journal of Educational Psychology, 1958, 49, 269-277.
- Pekin, L. B. Coeducation: In its historical and theoretical setting. London: The Hogarth Press, 1939.
- Rokeach, M. The nature of human values. Riverside, N.J.: Free Press, 1973.
- Schneider, F. W., & Coutts, L. M. Teacher orientations toward masculine and feminine: Role of sex of teacher and sex composition of school. Canadian Journal of Behavior Science, 1979, 11, 99-111.
- Stamp, R. M. Evolving patterns of education: English-Canada from the 1870's to 1914. In J. W. Wilson, R. M. Stamp, & L. Audet (Eds.), Canadian education: A history. Scarborough, Ont.: Prentice-Hall, 1970.
- Stern, G. G. People in context: Measuring person-environment congruence in education and industry. New York: Wiley, 1970.
- Wood, R., & Ferguson, C. Unproved case for coeducation. Times Educational Supplement, Oct. 4, 1974, p. 22.

Table 1

Mean Rankings of Value Climate Items (Collapsed Across Grade)

Item	Coeducational schools		Single-sex schools	
	Males	Females	Males	Females
Good personality	1.87	1.39	1.76	1.38
Leader in activities	2.94	2.90	2.85	2.61
Athletic star	2.61	4.05	2.84	3.71
Good looking	4.36	3.21	4.86	4.20
High grades	4.24	4.15	3.50	3.62
Money	5.00	5.31	5.15	5.46

Note. Low number signifies item was seen as contributing highly to achieving importance among same-sex peers at school.

Table 2

Mean Environmental Press Scores (Collaosed Across Grade)

	Coeducational schools		Single-sex schools	
	Males	Females	Males	Females
HSCI scale				
Achievement	5.73	5.87	5.89	5.56
Humanities, Social Science	3.46	3.29	3.38	3.23
Affiliation	7.01	6.70	5.49	4.81
Play-Work	7.49	7.19	5.99	5.68
Impulsiveness-Deliberation	6.21	6.33	5.90	5.59
Deference-Restiveness	4.00	4.01	3.75	4.66
Abasement-Assurance	3.92	3.89	4.36	4.71
<u>Objectivity-Projectivity</u>	6.39	6.41	6.10	5.54

High scores signify the characteristic on the left.